



Dominion Virginia Power Energy Conservation Plan

Voltage Conservation Initiative



Energy Conservation Plan

- ❑ Reaches 1/3 of Virginia's 10% conservation goal
 - 2.6 million megawatt-hours annually by 2013
 - Enough electricity to power 216,000 typical homes
- ❑ \$1 billion in customer savings in 15 years
- ❑ Carbon dioxide reduced by 12 million tons

Energy Conservation Programs

- ☐ “Smart Grid” technology
- ☐ Incentives for:
 - Energy-efficient home construction
 - Energy-efficient lighting
 - Air conditioner cycling
 - Heat pump efficiency
 - Commercial energy efficiency
- ☐ Power cost monitors
- ☐ Refrigerator turn-in program
- ☐ Energy audits and improvements for low-income customers



What is “Smart Grid” technology?

- ❑ Smart Grid describes the **end-state vision** for “a 21st century electric system that connects everyone to abundant, affordable, clean, efficient, and reliable electric power anytime, anywhere”*
- ❑ Advanced Metering Infrastructure (AMI) allows the **integration of technologies** to enable two-way communication between Dominion and consumers – the foundation for a Smart Grid
- ❑ Customers benefit from more information to manage energy use, **more choices** on price and service, and better power quality and reliability
- ❑ Society benefits from **more efficient** delivery of electricity and reduced environmental impact

*<http://www.oe.energy.gov/smartgrid.htm>



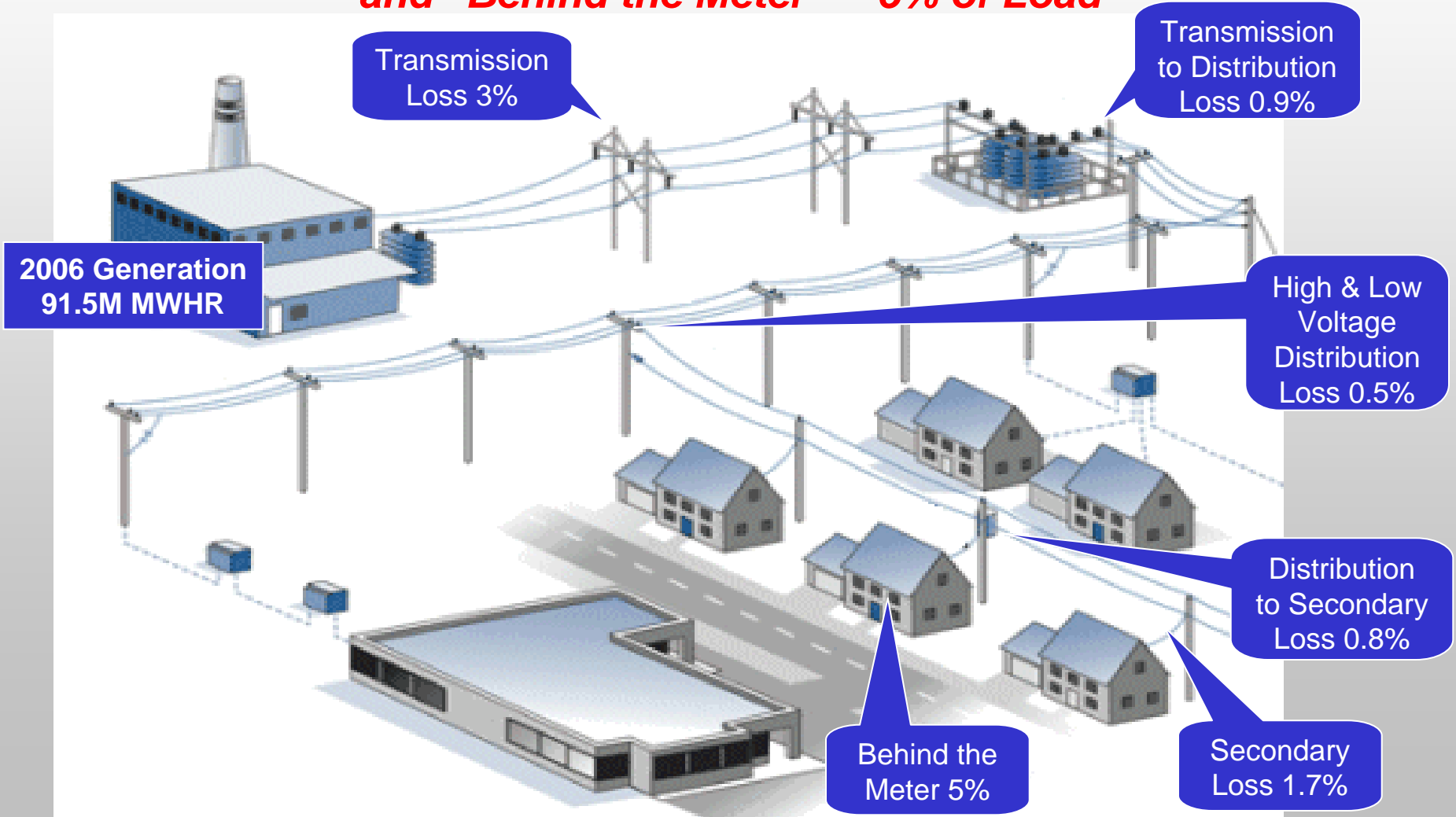
Voltage Conservation Program

Using innovative technology for more precise delivery of power

- ☐ Smart meters enable more precise control of voltage, providing energy savings during off-peak periods
- ☐ Voltage conservation program applies to 80% of our customers
- ☐ 1.5 M MWHR estimated annual energy savings
- ☐ Saves enough energy to power 100,000 homes every year

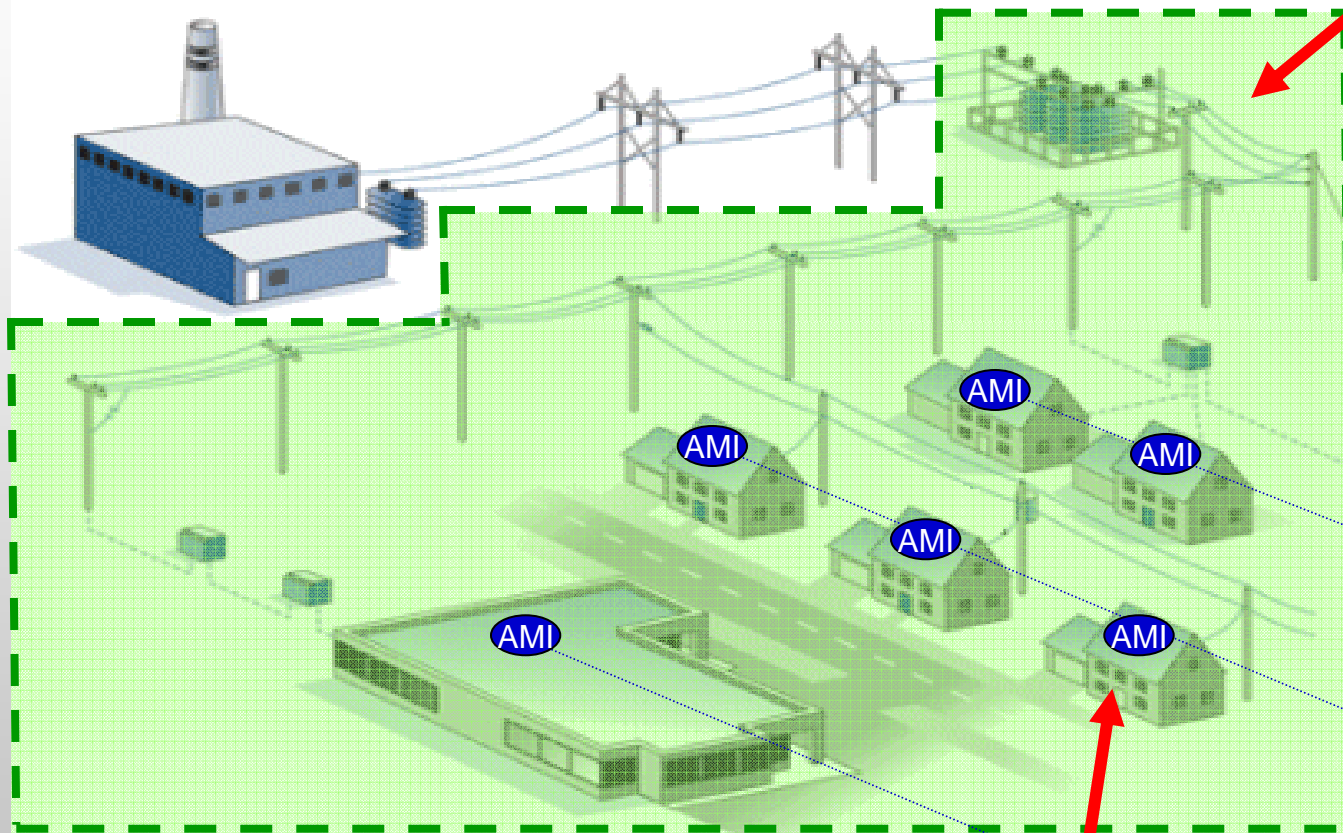
Transmission and Distribution Losses

**2006 Electric System Loss ~ 7% of Generation
and "Behind the Meter" ~ 5% of Load**





Customer Savings



Greater efficiency
can directly
benefit Virginia
ratepayers

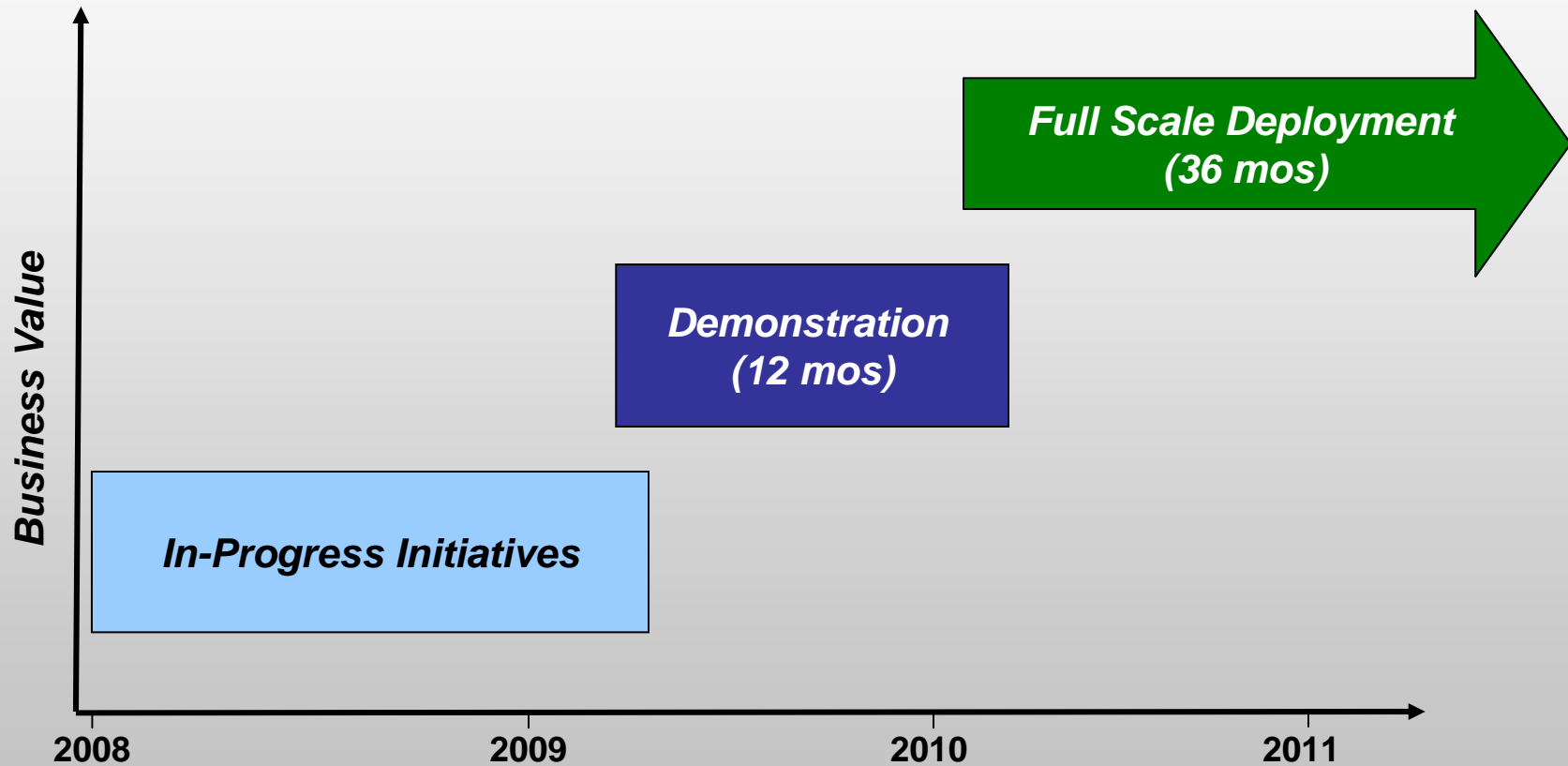
AMI
Monitoring
of Customer
Voltages

"Behind the meter" voltage conservation accounts for
an additional 2.5% energy savings in off-peak hours

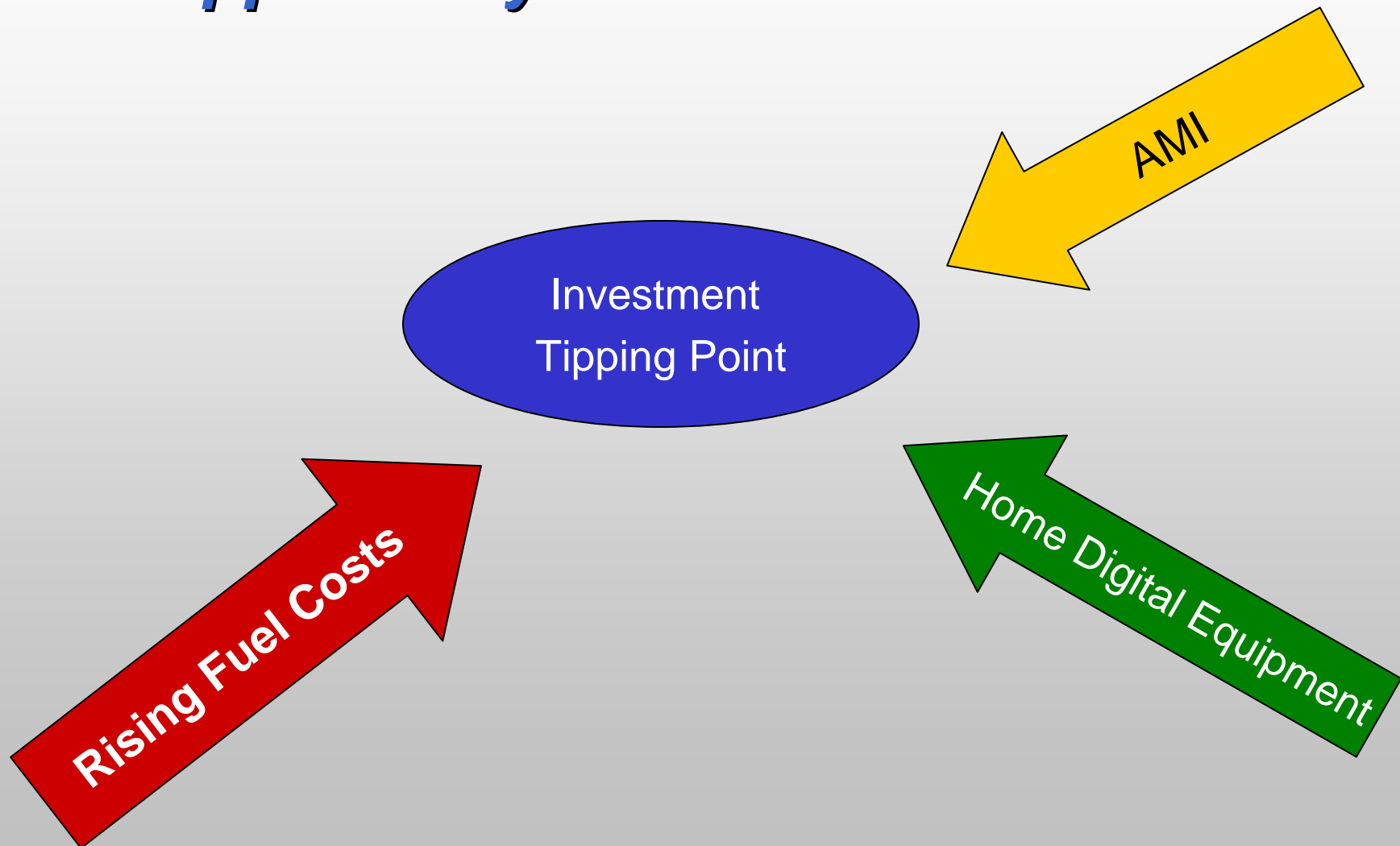
SCC Approval Needed

- ☐ \$600 million investment
- ☐ Demonstration implementation
 - 200,000 meters: Charlottesville, East Richmond, Leesburg
- ☐ Full Deployment
 - AMI: 100% of 2.3 M customers
 - Voltage Conservation: 80% of customers

Implementation: A Measured Approach



The Opportunity is Now





Voltage Conservation Program Benefit Summary

❑ Customer

- Lower monthly bill because of fuel savings
- No required change in behavior or loss of comfort
- Numerous customer service benefits through Smart Grid and AMI infrastructure (ie. immediate outage reporting, power consumption monitoring)

❑ Governor's Virginia Energy Plan

- Reduces off-peak energy consumption
- Meets 16% of targeted energy savings goal (33% when combined with other conservation initiatives)
- Reduces carbon footprint